

Texas. Fernald (Gray's Manual: 1412. 1950) includes "east Texas . . . and south Missouri" in the range of this species.

**HELIANTHUS HIRSUTUS* Raf., var. *TRACHYPHYLLUS* T. & G. This variety, without long-hirsute internodes and with broad leaves, is represented by *Waterfall 10270*, oak-hickory woods, 4 miles southeast of Braggs, Muskogee County, July 19, 1951. Fernald (Gray's Manual: 1492. 1950) gives the range as west Pennsylvania to Wisconsin and Iowa, south to Tennessee and Arkansas.

**HIERACIUM GRONOVII* L., var. *FOLIOSUM* Michx. is said to have "numerous cauline leaves extending nearly or quite into the inflorescence, . . . oval and rounded at the summit . . ." (*RHODORA* 37: 185. 1935). Such material was collected as *Waterfall 10427*, pine-oak woods, 2 miles north of Tom, McCurtain County, October 13, 1951. Fernald (l. c.) says "it is dominant on the coastal plain, extending . . . northward in the interior to southern Indiana and Missouri."

**SOLIDAGO RUGOSA* Mill., var. *ASPERA* (Ait.) Fern. So referred is material collected as *Waterfall 9821*, edges of Taxodium swamp, 3 miles south of Eagletown, McCurtain County, October 21, 1950. The leaves are rugose, but the branches are not elongated and divergent as in var. *celtidifolia*, and they produce flowers throughout most of their length. Fernald (*RHODORA* 38: 222. 1936) includes Texas and Missouri in the western part of the range of this variety.

**SOLIDAGO RUGOSA* Mill., var. *CELTIDIFOLIA* (Small) Fern. So referred is *Hopkins 5602*, deep, rich pine-oak-gum-hickory woods on slope of Rich Mountain, Ouachita Mountains, near Page, LeFlore County, October 13, 1940.

This specimen has the prolonged divergent branches, floriferous above the middle as Fernald describes var. *celtidifolia*.¹⁴ This variety has been recorded previously from as far west as the neighboring states of Texas and Arkansas by both Small (*Flora* . . . 1198. 1903) and Fernald (l. c.).—DEPARTMENT OF BOTANY AND PLANT PATHOLOGY, OKLAHOMA A. & M. COLLEGE, STILLWATER, OKLAHOMA.

COLOR-FORMS OF THE MAY-APPLE

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IN 1948 Dr. Marcel Raymond of the Montreal Botanical Garden described (*RHODORA* 50: 18) *Podophyllum peltatum* f. *Deamii*, based upon a plant with maroon or dark-reddish fruit found originally by Dr. C. C. Deam in 1927 in "a wood on the Arthur Miller farm near Mauckport, Harrison County," Indiana. From the living plants grown by Deam in his garden and sent to the Montreal Botanical Garden, the latter institution succeeded

¹⁴ Fernald, M. L. *RHODORA* 38: 223-224. 1936.

in growing plants to maturity and eventually offered seeds for distribution to a number of other botanical gardens. So far as known, this color form existed in a wild state only in Indiana, although it was expected to be found eventually in a wild state throughout the range of ordinary *P. peltatum*.

About the time Dr. Raymond's form was published, Mrs. Mary C. Rodeman of Jefferson City, Missouri, wrote the present author that she had found a pink-flowered purplish-red-fruited form of the May-apple near Jefferson City, eventually kindly furnishing me with an herbarium specimen and a kodachrome slide as evidence. She had been acquainted with this color variation since 1923. In the spring of 1950 she had taken a couple of the plants to Dr. Edgar Anderson for planting at the Missouri Botanical Garden Arboretum.

Since I was curious to learn whether Mrs. Rodeman's plant was actually the same form as that found by Deam, I undertook a special trip to the Missouri locality in July, 1950. Mrs. Rodeman kindly offered to accompany me, despite the rain, to the exact spot where she knew the plants to grow. Mr. Albert Vatter, Jr., a graduate student at the University of Illinois, was the third member of the party. Mrs. Rodeman led us to a spot of undisturbed woodland on the slopes of a shallow ravine bordering a small creek tributary to the Moreau River south of the golf course of Hough Park and about three-quarters of a mile southwest of the city limits of Jefferson City, the state capitol. The woods were dominated by *Quercus alba*, *Carya tomentosa*, and *C. ovata*, with an understory of *Cornus florida* and *Sassafras albidum*. Acid-soil plants, such as *Ranunculus Harveyi*, were associated with the May-apple.

It was not long before we located several plants showing the maroon-colored fruits. Altogether nearly two-dozen plants of this form were seen in two separate colonies mixed with the ordinary yellow-fruited kind. A splendid opportunity was afforded here for noting the color differences in the field. We observed other characteristics besides the maroon-colored pericarp: the fleshy portion of the fruit was a sordid white suffused with a pinkish-lavender tinge, the seeds were maroon or dark vinaceous, somewhat similar in color to some apple seeds, the fruiting peduncle purplish, the tip of the rhizome reddish-purple, and the

stems suffused with dull lavender. In contrast to this, the ordinary May-apple had a yellow-green or pale yellow pericarp, a white fleshy portion, yellow seeds, tip of the rhizome yellowish, and the stems and peduncle more predominantly yellowish-green.

Again in May of the following year the same locality was revisited in order to check on the nature of the flowering plants. Here the contrast was quite marked, as the petals of the maroon-fruited form were a delicate shade of pink or suffused with pinkish. Moreover, the stigma and ovary were of a deep or dark vinaceous color, whereas the short anthers were yellow and the filaments pale yellow. The peduncle, pedicel, and petiole were flecked throughout with lavender and the tip of the rhizome bud was a deep vinaceous color, as it had been in the fruiting specimen.

Herbarium material was collected on both trips from flowering and fruiting plants and is preserved in the Gray Herbarium, and the herbaria of the Missouri Botanical Garden and Chicago Natural History Museum. Living material from these collections was brought back to the author's wild flower preserve in northeastern Illinois. The plants are thriving, as are also those kindly sent to the author by Dr. Deam from his original colony. A careful examination of the Missouri plants leaves no doubt that they are the same as the Indiana forma *Deamii*, and comprise the second wild record within the natural range of the form.

The collection data for the Missouri specimens are as follows: *Steyermark 69987*, wooded (oak-hickory-flowering dogwood) slopes above small tributary at south end of Hough Park, a few hundred yards southwest of golf course hole no. 12, $\frac{1}{2}$ mile south of limits of Jefferson City, T 44 N, R 11 W, west-central part of sect. 19, Cole Co., July 17, 1950, "about 20 plants seen in two colonies"; *Steyermark 71155*, same locality, May 6, 1951.

Although forma *Deamii* has as yet not been found in a wild state in Illinois, another variant in fruit color from Illinois was recently discovered by Mrs. Valerie Bordener, who called Mrs. Julian Steyermark's attention to an orange-colored form which she had found in a natural stand of woodland only a short distance from the author's home in the Biltmore Estates subdivision, north of Barrington, Lake County. She and the author's wife, Mrs. Cora Steyermark, collected fruiting specimens in 1950

from a colony of a dozen plants. The pericarp was of a rich apricot or mango orange color with yellowish-white flesh within. The seeds, however, unlike those of forma *Deamii*, are yellow as in ordinary *P. peltatum*. The peduncle is suffused with pale apricot orange. The rhizome and upper portion of the stem are yellowish-green, while the lower part of the stem is a pale brick color.

The following spring in 1951 I made observations of flowering material, but could detect no differences between the orange-fruited form and the ordinary kind with which it was growing. The plants were again checked in fruit during August, 1951 and the same plants showed the orange color of the pericarp as contrasted with the usual pale yellow color of surrounding specimens. All these plants grew in an upland forest dominated by *Quercus alba*, *Q. ellipsoidalis*, and *Carya ovata* on the upper slopes of a ravine bordering a small creek. In the same area occurs a natural stand of over two hundred plants of *Liparis lilifolia*. A couple of transplanted specimens of this may-apple are thriving in the author's wild flower preserve, and seedlings grown from the seed of this form are now in their second year and will be watched for future performance.

To commemorate the name of the general locality where the plants were discovered, this form may be known as,

PODOPHYLLUM PELTATUM, f. **biltmoreanum** Steyermark, f. nov., a typo differt pericarpio aurantiaco et carne luteo-albido.—North-facing open oak-hickory wooded slope on northeast side of creek, south of Eton Drive and west of Kimberley Road, on the property of George Foster, just southwest of Bordener's house, Biltmore Estates subdivision, 5 miles north of Barrington, Lake Co., Illinois, August 16, 1950, *Mrs. Valerie Bordener and Mrs. Cora Steyermark*, TYPE, in Herb. Chi. Nat. Hist. Mus.—CHICAGO NATURAL HISTORY MUSEUM AND MISSOURI BOTANICAL GARDEN.